

Exhibit 13

Exhibit 4

Declaration of Branimir Vojcic, PhD

I, Dr. Branimir Vojcic, declare as follows:

1. I have personal knowledge of the facts set forth herein and if called and sworn as a witness I could and would testify competently thereto.

Contents

1. Expert background and qualifications	3
2. Level of Ordinary Skill in the Art	6
3. Legal Principles	6
4. Background of the Asserted Patents.....	7
5. Disputed Terms	8
5.1. “a processor configured to: generate a probing signal for transmission to least a first client device and a second client device” (’376 Patent cls. 1, 12, 22, 32).....	8
5.2. “wherein one or more of the processor, the transceiver, or the smart antenna is further configured to:” (’376 Patent cls. 1-6, 10, 12-17, 22-29, 32-34).....	29
5.3. “802.11 standard” (’376 Patent cls. 10, 21)	61
5.4. “wireless input/output (I/O) unit” (’939 Patent cls. 1-3, 15, 18-19, 23, 25, 30- 32)	63
5.5. “signal transmission/reception coordination logic” (’939 Patent cls. 1, 7-8, 11- 17, 23, 30)	69
5.6. “restrains at least one other access point of the plurality of access points from transmitting the other signal on a first channel responsive to the ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel” (’939 Patent cls. 1, 23)	83
5.7. “restrain at least a third access point of the plurality of access points from transmitting a third signal on a third channel responsive to the ascertaining that the first access point is receiving the first signal and that the second access point is receiving the second signal that is ongoing-on the second channel” (’939 Patent cl. 15)	83
5.8. “restrain at least a second access point of the plurality of access points from transmitting a second signal on a second channel different from the first channel responsive to the ascertaining that the first access point is receiving the first signal” (’939 Patent cl. 30)	84
5.9. “one other access point” (’939 Patent cls. 1, 7-8, 23).....	86
5.10. “the other signal” (’939 Patent cls. 1, 23).....	89
5.11. “the access point” (’939 Patent cls. 1, 4-5, 20-21, 23, 33-34)	94

5.12. “the signal” (’939 Patent cls. 1, 23)	94
5.13. “the ascertaining” (’939 Patent cl. 23)	98
5.14. “the other access point” (’939 Patent cls. 25-28)	102
5.15. “IEEE 802.11 standard” (’939 Patent cls. 3, 19, 32)	106
5.16. “a beam downlink” (’728 Patent cls. 1, 7)	108
5.17. “[a]/[the] different beam downlink” (’728 Patent cls. 1, 7)	108

1. EXPERT BACKGROUND AND QUALIFICATIONS

2. Included below is a summary of my educational background, career history, publications, and other relevant qualifications. In addition, I am attaching my Curriculum Vitae, which includes additional information about my qualifications and publications, as Appendix A to this Declaration.

3. I am an expert in wireless technology and other areas of telecommunications, signal processing, and electrical engineering. I am presently a Professor Emeritus of Engineering and Applied Science at The George Washington University. I retired from the university in May 2015, where I was a member of the faculty since September 1, 1991. In addition, I have served as a consultant for a number of companies in the wireless communications industry in various technology areas. I have also served on numerous committees and as a reviewer and editor for several journals, conferences, and organizations.

4. I am presently President of Xplore Wireless, LLC, a small telecommunication consulting company. I was also a co-founder, Director, CEO and CTO of LN2, a startup in the telecommunication space and a co-founder of Fowler Radio Group.

5. Appendix A is a current copy of my CV. As can be seen in Appendix A, I received my Diploma of Engineering, Master of Science, and Doctor of Science degrees in Electrical Engineering from the University of Belgrade in Yugoslavia in 1981, 1986, and 1989, respectively. The primary focus of my Doctor of Science studies was on Code Division Multiple Access (CDMA) and spread spectrum communications technologies.

6. In 1991, I joined The George Washington University as an Assistant Professor and was promoted to Associate Professor and Professor in 1997 and 2000, respectively. From 2001 to 2004, I served as the Chairman of the Electrical and Computer Engineering Department at The George Washington University. During my tenure at The George Washington University, until May 2015, I taught many different courses on communications theory and networks, wireless communications, CDMA, and I was a course director for a number of courses in communications. I have supervised students mostly in the areas of communications and coding theory, wireless communications/networks, CDMA (including IS-95, CDMA2000, WCDMA/HSDPA/HSUPA) and OFDM/LTE and have been a thesis director for a number of Doctor of Science candidates, who now have successful careers in academia, industry, and government.

7. My research in the areas I just mentioned has been supported by the communications industry and various Government agencies, such as Advanced Research Project Agency (ARPA), National Science Foundation (NSF), and National Security Agency (NSA). Much of this research concerns communications theory, performance evaluation, modeling wireless networks, multi-user detection, adaptive antenna arrays, and ad-hoc networks.

8. I have authored or co-authored numerous journal and conference papers, contributed to various books, and co-authored a text book on CDMA, entitled "The cdma2000 System for Mobile Communications," Prentice Hall, 2004. I also served as a co-editor of a book on wireless communications, entitled "Multiaccess, Mobility, and Teletraffic in Wireless Communications, Volume III," Kluwer Academic Publishers, Norwell, Massachusetts, 1998. My CV includes a detailed listing of my publications.

9. I have also received awards for my work. In 1995, I received the prestigious National Science Foundation Faculty Early CAREER Development Award. The award is given annually by NSF to a select group of young professors nationwide to promote excellence in teaching and research.

10. I have served as a consultant for numerous companies in the wireless communications industry in technology areas, in the areas of 2G/3G/4G mobile technologies, Wireless LANs, new generation broadcast systems, advanced mobile satellite systems and other aspects of modern communication systems. I have also taught academic courses as well as short

courses for the industry and government on various aspects of communications in the areas of 2G, 2.5G, 3G, and 4G cellular standards, such as CDMA2000 1xRTT, CDMA2000 Evolution Data Optimized (EVDO), Wideband Code Division Multiple Access (WCDMA), and LTE.

11. I am a Senior Member of the IEEE and was an Associate Editor for IEEE Communications Letters and Journal on Communications and Networks. I served as a member of technical program committees, as a session organizer for many technical conferences and workshops, and as a reviewer of technical papers for many journals and conferences.

12. I am a co-inventor of over 20 patents and patent applications including U.S. Patent No. 6,523,147, entitled “Method and Apparatus for Forward Error Correction Coding for an AM In-Band On-Channel Digital Audio Broadcasting System,” US Patent No. 8,595,590 B1, entitled “Systems and Methods for Encoding and Decoding Check-Irregular Non-Systematic IRA Codes,” and applications, “Joint Source-Channel Decoding with Source Sequence Augmentation”, US 20140153654 A1, Jun 5, 2014, “Systems and Methods for Advanced Iterative Decoding and Channel Estimation of Concatenated Coding Systems”, US 20140153625 A1, Jun 5, 2014, “Advanced Decoding of High/Medium/Low Density Parity Check Codes”, PCT/US13/72883, and International Application Number PCT/CA01/01488, entitled “Multi-User Detector For Direct Sequence - Code Division Multiple Access (DS/CDMA) Channels.”

13. Over the last several years I have evaluated many (on the order of hundreds) patents that are essential or potentially essential to wireless standards for various clients. These evaluations typically include, for example, analyzing whether the patent claims read on the relevant standard, considering the importance of the technological inventions claimed, analyzing how such claimed inventions compare to other similar patents in the field, searching for and reviewing potential prior art, reviewing and analyzing the prosecution histories of patents relevant to potential claim construction, infringement, or other issues, reviewing and analyzing the working group documents related to the relevant standard in relation to the claimed invention, and considering whether there are available alternatives to the claimed inventions.

14. I have provided expert reports, expert depositions, and testimony over the past 8 years in numerous cases involving many aspects of wireless communications.

15. In forming my opinion, I have reviewed, considered, and had access to U.S. Patent Nos. 10,594,376 (“376 Patent”), 8,289,939 (“939 Patent”), and 7,729,728 (“728 Patent”) including their specifications and claims, as well as their prosecution histories and provisional applications, the parties’ preliminary claim construction disclosures, and the materials cited in this declaration. I have also relied on my professional and academic experience in the field of wireless communication. I reserve the right to consider additional documents as I become aware of them and to revise my opinions accordingly.

2. LEVEL OF ORDINARY SKILL IN THE ART

16. The person of ordinary skill in the art of the patented technology at the time of the invention of the asserted patents would have a bachelor’s degree in electrical engineering or the equivalent and 2–3 years of work experience with digital wireless communication, or the equivalent.

3. LEGAL PRINCIPLES

17. I am not a lawyer, but I understand that in order to determine the scope of the claims, the Court construes the claims as a person of skill in the art would interpret them. To construe a claim, the Court considers the claim language, the specification of the patent and prosecution history. I understand that claim construction begins with an examination of the words of the claim, which are generally given their plain and ordinary meaning.

18. I understand that means-plus-function claims are governed under 35 U.S.C. § 112(6), which states: “An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.”

19. I understand that the failure to use the word “means” in a claim creates a rebuttable presumption that § 112, paragraph six does not apply.

20. I understand that a preamble of a claim is not limiting unless it breathes life and meaning into the claim.

21. I understand that if a claim is to be treated as a method claim, then the failure to use phrase “step for” creates a rebuttable presumption that § 112, paragraph six does not apply.

4. BACKGROUND OF THE ASSERTED PATENTS

22. The asserted patents are directed towards technology for wireless communication, specifically Wi-Fi/802.11 technologies. “Wi-Fi” is the colloquial and trade name for a family of wireless communication protocols that are maintained by a committee of the IEEE. The purpose of Wi-Fi communication is to efficiently transmit and receive digital data using electromagnetic signals. Wi-Fi/802.11 has become the ubiquitous wireless connection to the Internet and is now integrated into hundreds of millions of mobile devices globally. There have been numerous versions of the 802.11 standard, such as 802.11a, 802.11b, 802.11n, and 802.11ac. In the early 2000s, the dominant form of Wi-Fi was 802.11b.

23. For example, Claim 1 of the ’728 Patent recites:

1. A method for use in a wireless communication system, the method comprising:

selectively allowing a receiving device to operatively associate with a beam downlink transmittable to the receiving device via a phased array antenna of an access point;

receiving an uplink transmission from the receiving device through the phased array antenna;

determining from the uplink transmission if the receiving device should operatively associate with a different beam downlink transmittable via the phased array antenna;

allowing the receiving device to operatively associate with the different beam downlink if determining that the receiving device should operatively associate with the different beam downlink;

actively probing the receiving device by generating a signal to initiate that the phased array antenna transmit at least one downlink transmittable message over the different beam downlink, and gathering signal parameter information from uplink transmittable messages received from the receiving device through the phased array antenna.

understand it to be a structural element. A POSITA would be readily familiar with a data communications networking apparatus that includes both a “processor” and a “transceiver” that is operatively coupled to the “processor,” and a “smart antenna” that is operatively coupled to the “transceiver.”

74. The term “transceiver” would be readily understood to a POSITA as the term for structure in view of the claims and the specification. For example, the claim language itself confirms the structure of the transceiver, as it describes how the transceiver is coupled to the smart antenna and that the transceiver transmits and receives signals via the smart antenna. The specification explains that the “multi-beam directed signal system 206 can transmit and/or receive (i.e. transceive) information (e.g., in the form of data packets) by way of one or more directed communication beams 214 as a wireless communication via the antenna assembly 208.” ’376 Patent, 5:5-55. The specification also describes “receiver/transmitters (Rx/Tx) 824.” ’376 Patent, 10:17-12:45. These descriptions are consistent with dictionary definitions for the term “transceiver.” See, e.g., <https://www.merriam-webster.com/dictionary/transceiver> (a radio transmitter-receiver that uses many of the same components for both transmission and reception); <https://www.globalknowledge.com/us-en/topics/networking-wireless/glossary-of-terms/#T> (a portmanteau for transmitter/receiver that refers to a circuit that transmits outbound traffic to and receives inbound traffic from a network. Transceivers also act as converters that turn the type of digital signal in the computer and network card into the type of digital signal that is compatible with the network media).

75. A POSITA would readily understand from the specification and claims that the claimed transceiver (transceivers 824) is operatively coupled to the smart antenna. Specifically, weighting coefficients calculated by a smart antenna subsystem, that control an antenna pattern providing for transmission peaks and transmission nulls, are applied to transceivers 824 signals. See e.g. ’376 Patent, 24:23-25:28 and Fig. 12. Transceivers are also coupled to the transmit beam forming network 808, which is a component of the smart antenna. See e.g. Fig. 8B. I further address the smart antenna below.

reasonable certainty, the scope of the invention. In particular, a POSITA would recognize that the term “802.11 standard” does not refer to a particular 802.11 standard such as the 802.11b standard, but rather to any 802.11 standard.

106. I have reviewed the '376 Patent, the prosecution file history for the '376 Patent, as well as its provisional application 60/423,660, and I have not found anything within that would suggest to a POSITA that lexicography, express disclaimer, or prosecution history estoppel should apply to the term “802.11 standard” and limit its scope.

5.4. “wireless input/output (I/O) unit” ('939 Patent cls. 1-3, 15, 18-19, 23, 25, 30-32)

<u>Plaintiff's Construction</u>	<u>Defendants' Construction</u>
<p>No construction necessary; not governed by 35 U.S.C. § 112(6).</p> <p>Alternative proposed construction, should the term be treated as means-plus-function:</p> <p>Function: Claims 1, 15, 23, and 30: establish a plurality of access points Claims 2, 18, and 31: establish a plurality of co-located access points Claims 3, 19, and 32: operate in accordance with at least one IEEE 802.11 standard</p> <p>Structure: Wireless input/output unit 206 and/or 5:30-64 and equivalents thereof</p>	<p>Governed by 35 U.S.C. § 112, ¶6, and indefinite</p> <p>Function: Claims 1, 15, 23, and 30: “establish a plurality of access points” Claims 2, 18, and 31: “establish a plurality of co-located access points” Claims 3, 19, and 32: “operate in accordance with at least one IEEE 802.11 standard”</p> <p>Structure: None disclosed</p>

107. I understand that Defendants contend that the claim element which provides “wireless input/output (I/O) unit” should be interpreted under Section 112, paragraph 6. I understand Defendants are contending that the term “wireless input/output (I/O) unit” fails to convey sufficient structure to a POSITA, and that the term is therefore indefinite for allegedly lacking corresponding structure. I disagree for several reasons. Here, the meaning of this claim term would be clear to a POSITA from the claim language itself. And even if a disclosure of corresponding structure in the specification were required, the '939 patent does disclose corresponding structure.

5.4.1. Section 112(6) does not apply.

108. First, I am not a lawyer, but I understand that the failure to use the word “means” in a claim creates a rebuttal presumption that Section 112(6) does not apply. I understand that to rebut this presumption, Defendants must demonstrate that the claim language fails to recite sufficiently definite structure, or else, that the claim language recites function without reciting sufficient structure for performing that function.

109. A POSITA would recognize, in light of the specification, that the term “wireless input/output (I/O) unit” in the claim designates structure. A POSITA would be readily familiar with the term “wireless input/output (I/O) unit” and understand it to be a structural element. A POSITA would understand, in light of the specification and the surrounding claim language, that the term “wireless input/output (I/O) unit” in claims 1-3, 15, 18-19, 23, 25, 30-32 of the ’939 Patent recites specific and sufficient structure.

110. A POSITA would also readily understand that the claimed “wireless input/output (I/O) unit” as structure in view of the claims and in light of the specification. For example, the claim language itself confirms the structure of the wireless input/output (I/O) unit, as it describes how the wireless input/output (I/O) unit is configured to establish a plurality of access points (claims 1, 3, 15, 18, 23, 25, 30, and 31) and “operates in accordance with at least one IEEE 802.11 standard” (claims 3, 19, and 32).

111. As further example, the specification introduces detailed descriptions of certain embodiments that includes “wireless input/output (I/O) unit 206”. ’939 Patent, 2:53-56, 4:5-23, 4:44-46, 5:30-64, 6:22-30, 6:54-64. For example, the specification explains that in exemplary Figure 2, “Access station **102** includes wireless I/O unit **206**. Wireless I/O unit **206** includes an antenna array **208** that is implemented as two or more antennas, and optionally as a phased array of antennas. Wireless I/O unit **206** is capable of transmitting and/or receiving (i.e., transceiving) signals (e.g., wireless communication(s) **106** (of FIG. 1)) via antenna array **208**.” ’939 Patent, 4:17-23. Figure 2 shows “an exemplary wireless LAN/WAN communications environment **200** that includes an access station **102**, a wireless input/output (I/O) unit **206**, an antenna array **208**, and multiple communication beams **202**.” ’939 Patent, 4:5-7; 2:53-56. The specification further describes that the wireless I/O unit 206 can produce “multiple communication beams **202(1)**,

202(2) . . . 202(N)” by using a beamformer with antenna array 208.’939 Patent, 4:44-46. These disclosures indicate the inputs, outputs, and connections between wireless I/O unit 206 and, e.g., the antenna array 208.

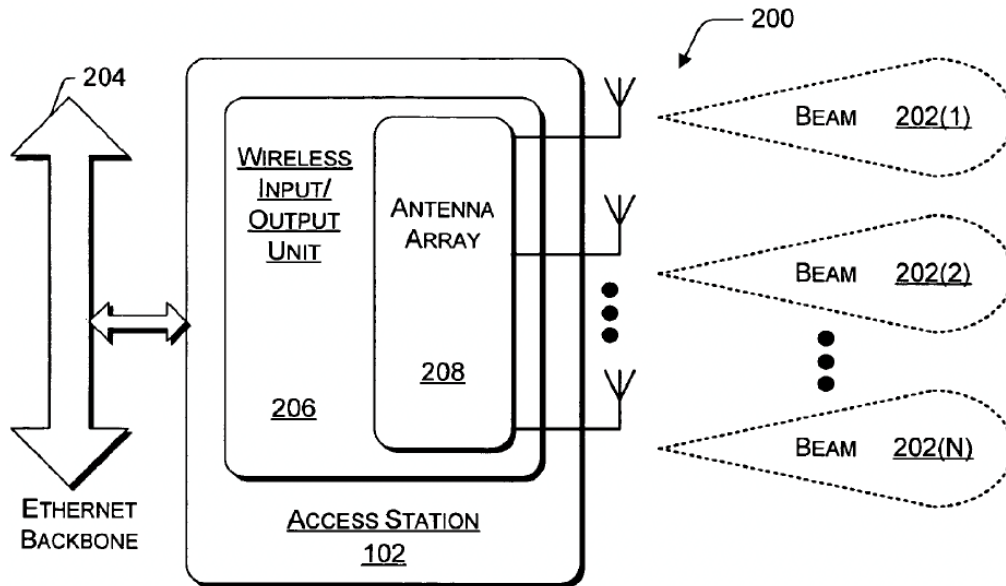


Fig. 2

112. As another example, the specification describes access station 102 in exemplary Figure 4 as including a wireless I/O unit 206, describes the wireless I/O unit 206 as including or associating with signal transmission/reception coordination logic 404. ’939 Patent, 5:30-33. The specification further states, “In a described implementation, wireless I/O unit 206 establishes two or more access points 402, such as multiple access points 402(1), 402(2) . . . 402(N).” ’939 Patent, 5:38-43; *see also* ’939 Patent, 5:57-58 (“In operation, access station 102 establishes multiple co-located access points 402 using wireless I/O unit 206.”). The specification further describes that an access point can “receiv[e] a signal via a wireless I/O unit 206.” ’939 Patent, 6:27-30. The specification also describes what the wireless I/O unit 206 may include and correspond to, namely, it “may correspond to MACs 604, MAC coordinator logic 606, BB units 608, and RF parts 610” and include “one or more of Ethernet switch/router 602, beamformer 612, and antenna array 208.” ’939 Patent, 6:60-64. A POSITA would readily understand from these disclosures in the specification that “wireless input/output (I/O) unit” therefore refers to structure. These disclosures

indicate the inputs, outputs, and connections between wireless I/O unit 206 and the Ethernet switch/router 602, beamformer 612, antenna array 208, MACs 604, MAC coordinator logic 606, BB units 608, and RF parts 610.

5.4.2. If 112(6) Applies, the '939 Patent Discloses Corresponding Structure.

113. Even if this claim term is subject to Section 112(6), the '939 patent still discloses corresponding structure. As I have explained, the “wireless input/output (I/O) unit” would be readily understood to a POSITA as structure, and alternatively may correspond with wireless input/output (I/O) unit 206 and/or equivalents thereof. Claims 1-3, 15, 18-19, 23, 25, 30-32 recite functions of the wireless input/output (I/O) unit as:

- Claims 1, 15, 23, and 30: establish a plurality of access points
- Claims 2, 18, and 31: establish a plurality of co-located access points
- Claims 3, 19, and 32: operate in accordance with at least one IEEE 802.11 standard

114. The '939 Patent discloses numerous embodiments of data-communications networking apparatuses that would inform a POSITA to understand that the claimed wireless input/output (I/O) unit is necessary structure in the data-communications networking apparatus, including access points or Wi-Fi switches, described repeatedly throughout the specification in various embodiments. Each of the following descriptions should be understood in this context.

115. For example, a POSITA would understand that the “wireless input/output (I/O) unit 206” is both (i) corresponding structure for the “wireless input/output (I/O) unit” in a wireless networking device, and (ii) a structure that is capable of establishing a plurality of access points; establishing a plurality of co-located access points; and operating in accordance with at least one IEEE 802.11 standard. '939 Patent, 2:53-56, 4:5-23, 4:44-46, 5:30-64, 6:22-30, 6:54-64.

116. The specification provides that “wireless I/O unit **206** establishes two or more access points **402**, such as multiple access points **402(1)**, **402(2)** . . . **402(N)**.” '939 Patent, 5:38-43; *see also* '939 Patent, 5:57-58 (“In operation, access station **102** establishes multiple co-located access points **402** using wireless I/O unit **206**.”). The text accompanying Figure 4 also provides that “each access point of the multiple access points **402** may correspond to, for example, an individual access point in accordance with an IEEE 802.11-based standard.” '939 Patent, 5:30-64.

The specification further describes, “With respect to a so-called Wi-Fi wireless communications system, for example, access station **102** and/or remote clients **104** may operate in accordance with any IEEE 802.11 or similar standard” (’939 Patent, 3:47-50) and that “Access station **102** includes wireless I/O unit **206**. Wireless I/O unit **206** includes an antenna array **208** that is implemented as two or more antennas, and optionally as a phased array of antennas. Wireless I/O unit **206** is capable of transmitting and/or receiving (i.e., transceiving) signals (e.g., wireless communication(s) **106** (of FIG. 1)) via antenna array **208**.” ’939 Patent, 4:17-23. As discussed above, a POSITA readily understands the IEEE 802.11 standard and the establishment of access points by a wireless I/O unit. The specification further describes that the wireless I/O unit 206 can produce “multiple communication beams **202(1)**, **202(2)** . . . **202(N)**” by using a beamformer with antenna array 208. ’939 Patent, 4:44-46; ’939 Patent, 5:44-47 (“each respective access point **402** of the multiple access points 402 may correspond to, for example, a respective communication beam **202** of multiple communication beams **202** (as shown in FIGS. 2 and 3).”). Figure 2 shows “an exemplary wireless LAN/WAN communications environment **200** that includes an access station **102**, a wireless input/output (I/O) unit **206**, an antenna array **208**, and multiple communication beams **202**.” ’939 Patent, 4:5-7; 2:53-56. Figure 2 also shows the wireless I/O unit 206 producing multiple “multiple communication beams **202(1)**, **202(2)** . . . **202(N)**” by using a beamformer with antenna array 208. ’939 Patent, 4:44-46. Figure 4 of the ’939 Patent further shows a plurality of access points established from the wireless input/output unit 206 and the wireless input/output unit 206 establishing a plurality of co-located access points. In the alternative, the foregoing provide exemplary algorithms linked to the claimed function of establishing a plurality of access points. *See, e.g.*, ’939 Patent, 5:30-64.

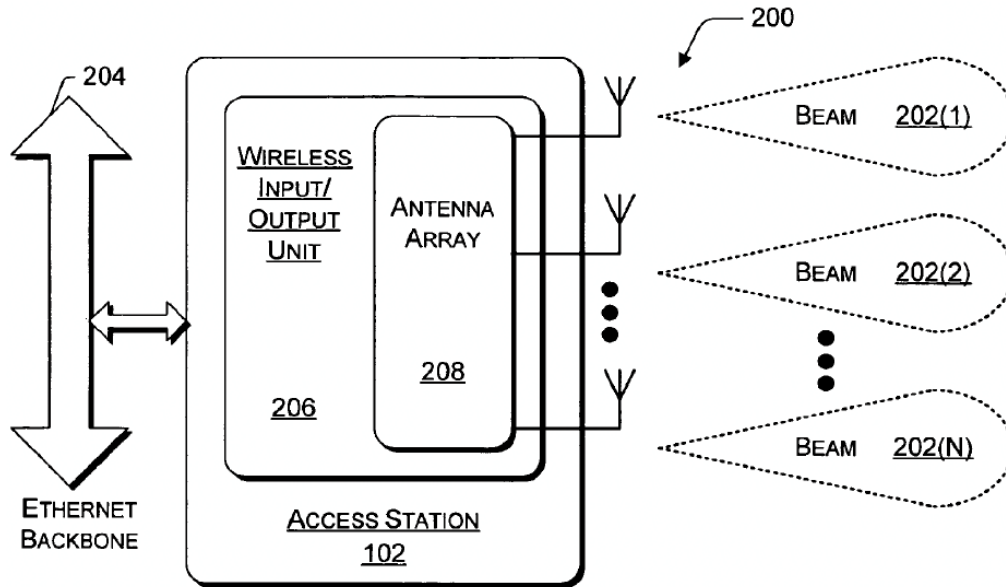


Fig. 2

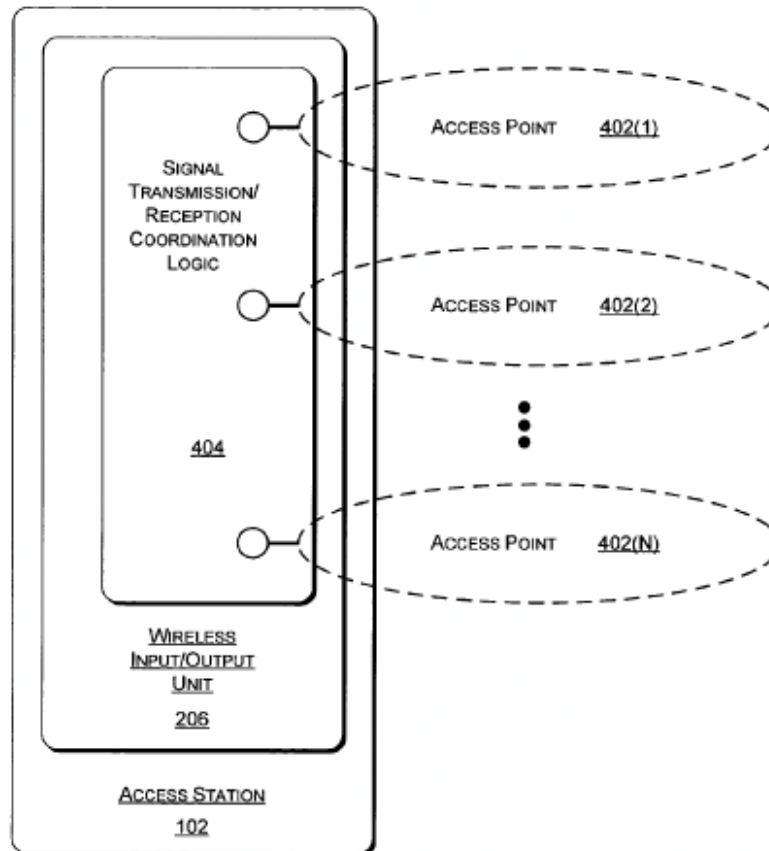


Fig. 4

117. A POSITA therefore would readily understand that, if 112(6) applies, the wireless input/output unit 206 is corresponding structure to the claimed to a wireless input/output (I/O) unit that is configured to establish a plurality of access points; establish a plurality of co-located access points; and operate in accordance with at least one IEEE 802.11 standard.

5.5. “signal transmission/reception coordination logic” (’939 Patent cls. 1, 7-8, 11-17, 23, 30)

<u>Plaintiff’s Construction</u>	<u>Defendants’ Construction</u>
<p>No construction necessary.</p> <p>Alternative proposed construction, should the term be treated as means-plus-function:</p> <p>Function: Claim 1: ascertaining, by monitoring the plurality of access points for received signals, that a first access point of the plurality of access points is receiving a first signal” and “restrain[ing] at least two other access points of the plurality of access points from transmitting signal responsive to the ascertaining that the first access point is receiving the first signal Claim 1 and 23: restrain[ing] at least one other access point of the plurality of access points from transmitting the other signal on a first channel responsive to the ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel Claim 7: restrain[ing] at least one other access point of the plurality of access points while the first access point is receiving the first signal Claim 13: affect[ing] a baseband unit Claim 14: affect[ing] a radio frequency (RF) part Claim 15: ascertaining, by monitoring the plurality of access points for received signals,</p>	<p>Governed by 35 U.S.C. § 112, ¶6, and indefinite</p>

<u>Plaintiff's Construction</u>	<u>Defendants' Construction</u>
<p>that: a first access point of the plurality of access points is receiving a first signal on a first channel, a second access point of the plurality of access points is receiving a second signal that is ongoing on a second channel, restrain[ing] at least a third access point of the plurality of access points from transmitting a third signal on a third channel responsive to the ascertaining that the first access point is receiving the first signal and that the second access point is receiving the second signal that is ongoing-on the second channel, wherein the restraining at least the third access point prevents degradation to the first and second signals</p> <p>Claim 23: restrain[ing] transmission from at least two access points when another access point is expecting a short-term response to a frame that was transmitted by said other access point</p> <p>Claim 30: ascertaining, by monitoring the plurality of access points for received signals, that a first access point of the plurality of access points is receiving a first signal on a first channel, restrain[ing] at least a second access point of the plurality of access points from transmitting a second signal on a second channel different from the first channel responsive to the ascertaining that the first access point is receiving the first signal.</p> <p>Structure: Signal transmission/reception coordination logic 404 and/or MAC coordinator logic 606 and/or 6:16-38 and/or 6:65-7:20 and/or 9:11-59 and/or 11:54-12:21 and/or 17:1-32, and equivalents thereof</p>	

118. I understand that Defendants contend that the claim element which provides “signal transmission/reception coordination logic” should be interpreted under Section 112, paragraph 6. I understand Defendants contend “signal transmission/reception coordination logic”

fails to convey sufficient structure to a POSITA, and that the entire phrase is therefore indefinite for allegedly lacking corresponding structure. I disagree for several reasons. Here, the meaning of this claim term would be clear to a POSITA from the claim language itself. And even if a disclosure of corresponding structure in the specification were required, the '939 patent does disclose corresponding structure.

5.5.1. Section 112(6) does not apply.

119. First, I am not a lawyer, but I understand that the failure to use the word “means” in a claim creates a rebuttal presumption that Section 112(6) does not apply. I understand that to rebut this presumption, Defendants must demonstrate that the claim language fails to recite sufficiently definite structure, or else, that the claim language recites function without reciting sufficient structure for performing that function.

120. A POSITA would recognize, in light of the specification, that the term “logic” in the claim element designates structure. A POSITA would be readily familiar with the term “logic” and understand it to be a structural element. In addition, a POSITA would understand that “signal transmission/reception coordination logic” is a specific class of logic (or electronic circuit) and the term likewise designates structure. A POSITA would understand, in light of the specification and the surrounding claim language, that the term “signal transmission/reception coordination logic” in claims 1, 7-8, 11-17, 23, 30 of the '939 Patent does not need to be construed because the term has a plain and ordinary meaning. A POSITA would also understand, in light of the specification, that the '939 Patent consistently uses the term “signal transmission/reception coordination logic” in its plain and ordinary sense. “Signal transmission/reception coordination logic”, as described in the '939 Patent, recites specific and sufficient structure: namely, a special purpose processor for a digital wireless networking apparatus in a wireless network that coordinates signal transmissions and receptions for different access points.

121. The term “signal transmission/reception coordination logic” in claims 1, 7-8, 11-17, 23, 30 of the '939 Patent itself discloses a structure well-known to a POSITA. A POSITA would recognize this structure from the claim language alone. For example, the language of the claims describes how the signal transmission/reception coordination logic is a special purpose processor for use in a wireless networking apparatus that: (i) monitors the plurality of access points

for received signals, (ii) can ascertain that certain access points of a plurality of access points are receiving certain signals, and (iii) can restrain certain access points from the plurality of access points from transmitting signals responsive to the ascertaining. '939 Patent, claims 1, 7-8, 11-17, 23, 30. A POSITA would readily understand that the structure to perform monitoring access points for received signals, and ascertaining signals received by or restraining signals transmitted by access points is special purpose processor for use in a wireless networking apparatus, such as signal transmission/reception coordination logic. A POSITA would readily understand that the term "signal transmission/reception coordination logic" is not a placeholder for a term lacking structure, such as "means." Rather, the term "signal transmission/reception coordination logic" is a limited class of processor structures in a wireless networking apparatus, as discussed.

122. The intrinsic record is in accord with the claim language. For example, the specification at 5:33-37 states that "Wireless I/O unit 206 includes or is associated with signal transmission/reception coordination logic 404. Such logic may be implemented as hardware, software, firmware, Some combination thereof, and so forth."

123. The specification also describes that "signal transmission/reception coordination logic" may be implemented in circuitry. For example, the specification states that signal transmission/reception coordination logic may be at the MAC layer or at the baseband layer, and that "signal transmission/reception coordination logic **404** may be implemented at the baseband layer in a system that utilizes off-the-shelf chips in which MAC and baseband functionality are integrated into a single chip or chips that may not separately expose desired MAC signal(s) (e.g., MAC primitives)." '939 Patent, 18:39-44; *see also* 18:12-19. The specification also states that "signal transmission/reception coordination logic 404 may be realized as s MAC coordinator logic **606**." '939 Patent, 15:39-51.

124. The specification further describes that signal transmission/reception coordination logic is coupled to access stations and can be located within an access station. For example, in exemplary Figure 11:

Each access station **102 a** and **102 b** is coupled to signal transmission/reception coordination logic **404** via a link **1102**. Specifically, access station **102 a** is coupled to signal transmission/reception coordination logic **404** via link **1102 a**, and access station **102 b** is coupled to signal transmission/reception coordination logic **404** via link **1102 b**. Links **1102 a** and **1102 b** are likely wired links, but they may instead

be wireless links. Although signal transmission/reception coordination logic **404** is shown separately from both access stations **102 a** and **102 b**, signal transmission/reception coordination logic **404** may alternatively be co-located at and/or located within an access station **102 a** or **102 b**. Additionally, access station **102 a** and/or **102 b** may also include internal signal transmission/reception coordination logic **404**.

'939 Patent, 16:53-67. *See also* Figs. 4-5 and 11-13, 2:59-64, 3:13-21, 5:30-37, 6:16-53.

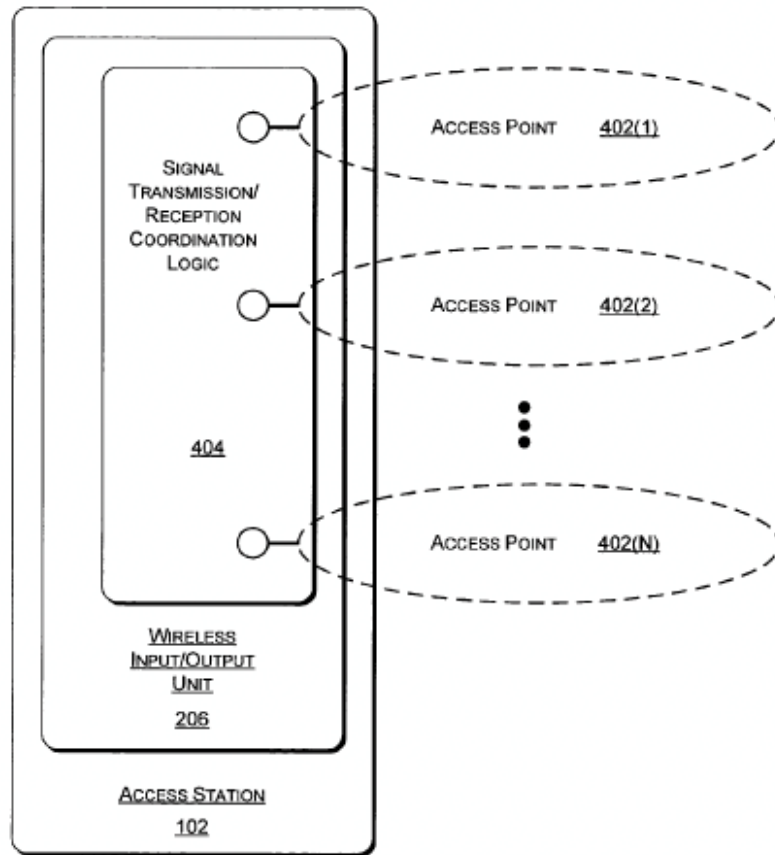


Fig. 4

As another example, the specification states, “Each access station **102 a** and **102 b** is coupled to signal transmission/reception coordination logic **404** via a link **1102**. Specifically, access station **102 a** is coupled to signal transmission/reception coordination logic **404** via link **1102 a**, and access station **102 b** is coupled to signal transmission/reception coordination logic **404** via link **1102 b**.” *Id.*, 16:53-58; *see also id.*, Figs. 11-12, 6:65-7:20, 9:11-13, 17:54-64.

125. The specification further describes signal transmission/reception coordination logic as “coordinates uplink and downlink signals across (e.g., between and/or among) different access points 402.” ’939 Patent, 5:53-55. Signal transmission/reception coordination logic is further described in the specification as “adapted to monitor the multiple access points 402(1 . . . N) to ascertain when a signal is being received. When an access point 402(w) is ascertained to be receiving a signal, signal transmission/reception coordination logic 404 is capable of restraining (e.g., limiting, preventing, delaying, etc.) the transmission of signals on the other access points 402(1 . . . w-1, w+1 . . . N).” ’939 Patent, 5:65-6:5; *see also id.*, 5:57-64, 6:22-38, 6:47-53, 6:65-7:20, 9:13-10:21, 10:29-60, 11:10-12:14, 13:22-33, 13:65-14:44, 15:23-28, 15:31-38, 15:49-59, 16:22-41, 16:53-17:33, 17:54-18:55. These operations would be understood by a POSITA to typically involve calculations, comparisons, and other computations that can be readily performed by the signal transmission/reception coordination logic components.

126. A POSITA would view the term “signal transmission/reception coordination logic”, as used in claims 1, 7-8, 11-17, 23, 30 of the ’939 Patent, as electrical circuitry. The reason for this is because claims 1, 7-8, 11-17, 23, 30 describe an apparatus comprising a wireless input/output (I/O) unit, a plurality of access points, and signal transmission/reception coordination logic operatively coupled with access point. A POSITA would recognize, in light of the specification, that the “signal transmission/reception coordination logic”, along with a wireless input/output (I/O) unit, and a plurality of access points are all physical, structural elements that are operatively coupled together as recited in the claims. A POSITA would not interpret claims 1, 7-8, 11-17, 23, 30 to require a physical wireless input/output (I/O) unit and plurality of access points that are operatively coupled together, but not also require that the “signal transmission/reception coordination logic” be a physical structure that is operatively coupled with wireless input/output (I/O) unit and plurality of access points. In other words, a POSITA would not view “signal transmission/reception coordination logic” in the context of claims 1, 7-8, 11-17, 23, 30 as a nonstructural item like a software module.

127. Further, a POSITA would understand, in light of the specification, that the “signal transmission/reception coordination logic” is digital hardware. For example, the term “logic” in (electrical and computer) engineering and computer science has roots in Boolean algebra and Boolean logic that define binary digital operations based on truth tables. Such operations are

necessarily implemented in digital circuits and computers that implement various tasks and algorithms. Over time the term “logic” has often assumed the meaning of “logic circuitry” or “digital circuitry” that could be implemented with custom digital circuits like in application specific integrated circuits (ASICs), FPGAs or programmable processors, such as digital signal processors, digital microprocessors, digital microcontrollers and similar, driven by programs or structures involving implementation finite state machines. These customized circuits and processors (e.g., custom FPGAs or ASICs) were in common use around 2000, and were commonly referred to as logic, custom logic, or custom logic chips. A specific example of customized logic is glue logic, which is circuitry used to allow different types of logic chips or circuits to work together by acting as the interface between them. Customized circuits and processors could be designed and manufactured to perform various electronic functions, including the functions, relevant to the '939 Patent. A POSITA would recognize that in the configuration and operation of claims 1, 7-8, 11-17, 23, 30 of the '939 Patent would require the use of digital circuits.

128. The extrinsic evidence is in accord with this. For example, the common definition of “logic” is “the arrangement of circuit elements (as in a computer needed for computation; also: the circuits themselves.” *Webster’s Ninth New Collegiate Dictionary*, at 702 (9th ed. 1989); *Webster’s New World College Dictionary*, at 795 (Victoria Neufeldt et. al. eds., 3d. ed. 1997) (“the systematized interconnection of switching functions, circuits, or devices, as in electronic computers.”); George McDaniel, *IBM Dictionary of Computing*, at 396 (1994) (“The systematized interconnection of digital switching functions, circuits, or devices.”).

129. Further, the limiting modifier “signal transmission/reception coordination” specifies a class of “logic” structures. For instance, the term “transmission” has a common meaning in the field of electronics and is defined by *McGraw-Hill Dictionary of Scientific and Technical Terms*, 5th ed. (1994) as “the process of transferring a signal, message, picture, or other form of intelligence from one location to another location by means of wire lines, radio, light message, infrared beams, or other communication systems.” Likewise, the term “reception” has a common meaning in the field of electronics and is defined by *McGraw-Hill Dictionary of Scientific and Technical Terms*, 5th ed. (1994) as “the conversion of modulated electromagnetic waves or electric signals, transmitted through the air or over wires or cables, into the original intelligence, or into desired useful information (as in radar), by means of antennas and electronic equipment.”

As another example, “coordination” has the common definition of “the process of causing things to be the same or to go together well.” <https://www.merriam-webster.com/dictionary/coordination>.

5.5.2. If 112(6) Applies, the '939 Patent Discloses Corresponding Structure.

130. Even if the claim term is subject to section 112(6) treatment, it is not indefinite. To the contrary, a POSITA would readily understand that the '939 Patent specification discloses specific structures and algorithms clearly linked with each claimed function. As an example, the patent discloses signal transmission/reception coordination logic 404 and MAC coordinator logic 606, which are clearly linked to performing the claimed functions. In the alternative, the accompanying descriptions in the specification described below are clearly linked to performing the claimed functions.

5.5.3. Claim 1: “ascertaining, by monitoring the plurality of access points for received signals, that a first access point of the plurality of access points is receiving a first signal” and “restrain[ing] at least two other access points of the plurality of access points from transmitting signal responsive to the ascertaining that the first access point is receiving the first signal”; Claim 1 and 23: “restrain[ing] at least one other access point of the plurality of access points from transmitting the other signal on a first channel responsive to the ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel”; Claim 7: restrain[ing] at least one other access point of the plurality of access points while the first access point is receiving the first signal; Claim 30: “ascertaining, by monitoring the plurality of access points for received signals, that a first access point of the plurality of access points is receiving a first signal on a first channel, restrain[ing] at least a second access point of the plurality of access points from transmitting a second signal on a second channel different from the first channel responsive to the ascertaining that the first access point is receiving the first signal.”

131. A POSITA would readily understand from the specification that the signal transmission/reception coordination logic 404 is capable of performing these functions and clearly linked to the claimed functions. In the alternative, the specification discloses an algorithm for performing this function. This is shown in figure 5 and described in the specification at 6:22-38:

At block 502, multiple access points are monitored. For example, access points 402(1 . . . N) may be monitored by signal transmission/reception coordination logic 404 (e.g., to detect signal reception). At block 504, it is ascertained that an access point of the multiple monitored access points is receiving a signal. For example, it may be ascertained by signal transmission/reception coordination logic 404 that an access point 402(1) of multiple access points 402(1 . . . N) is receiving a signal via a wireless I/O unit 206.

At block 506, the other access points of the multiple monitored access points are restrained from transmitting a signal. For example, signal transmission/reception coordination logic 404 may restrain access points 402(2 . . . N) from transmitting a signal. In a described implementation, signal transmission/reception coordination

logic 404 may restrain access points 402(2 . . . N) from transmitting signals until access point 402(1) ceases receiving the signal.

Further details of this structure and algorithm are given at 5:65-6:15.

132. A POSITA would also readily understand from the specification that MAC coordinator logic 606 is capable of performing this function and clearly linked to the function. This is shown in Figures 6 and 7 and described at 6:54-10:60. For example, at 9:11-59 the following structure and algorithm is disclosed:

As described above, MAC coordinator logic 606 is coupled to both of multiple BB units 608(1, 2 . . . N) and multiple MACs 604(1, 2 . . . N). In a described implementation, MAC coordinator logic 606 is configured to prevent MACs 604(1, 2 . . . N) from causing a transmission if at least one and optionally if any of BB units 608(1, 2 . . . N) are receiving. For example, if BB unit 608(2) indicates that it is receiving a packet, MAC coordinator logic 606 instructs MACs 604(1, 2 . . . N) so as to restrain them from causing a packet transmission during the packet reception. Factors that can modify, tune, tweak, extend, etc. this packet transmission restraint are provided further below. As an example, the MACs of MACs 604(1, 3 . . . N) that enable transmissions on a different channel or channels from that of BB unit 608(2) may not be restrained.

More specifically, each BB unit of BB units 608(1, 2 . . . N) forwards a receive indicator (“Rcv. Indicator” in FIG. 6) to MAC coordinator logic 606. MAC coordinator logic 606 is thus able to monitor BB units 608(1, 2 . . . N). MAC coordinator logic 606 analyzes the receive indicators to produce a constructive receive indicator (“C-Rcv. Indicator” in FIG. 6). This constructive receive indicator is provided to each MAC of MACs 604(1, 2 . . . N).

In a described implementation, each BB unit 608(z) of BB units 608(1, 2 . . . N) forwards a receive indicator that reflects whether/when BB unit 608(z) is currently receiving a signal. Optionally, not physically forwarding an indicator may constitute a receive indicator that reflects that no signal is being received. After processing the different receive indicators, MAC coordinator logic 606 forwards the same constructive receive indicator to each MAC of MACs 604(1, 2 . . . N) based on multiple, and possibly all, receive indicators. As alluded to above, employing different factors, for example, may result in MAC coordinator logic 606 providing different constructive receive indicators to at least different subsets of MACs of MACs 604(1, 2 . . . N).

The receive indicators forwarded to MAC coordinator logic 606 from BB units 608(1, 2 . . . N) may be comprised of any one or more different indications from BB units 608(1, 2 . . . N). For example, the receive indicators may comprise clear channel assessment (CCA) or busy/non-busy indications. Alternatively, the receive indicators may comprise indications of signal reception based on energy signals, cross-correlation signals, data signals, other transmit and/or control signals, some

combination thereof, and so forth. Furthermore, a receive indicator may comprise an analog or digital indication (of one or more bits), the driving of one or more lines, the presentation of one or more messages, some combination thereof, and so forth.

5.5.4. Claim 13: “affect[ing] a baseband unit”; Claim 14: “affect[ing] a radio frequency (RF) part”

133. A POSITA would readily understand from the specification that MAC coordinator logic 606 capable of performing these functions and clearly linked to the claimed functions. In the alternative, the specification discloses an algorithm for performing this function. This is described in the specification at 6:65-7:20 and 9:11-25:

In a described implementation, antenna array 208 is coupled to beamformer 612. Beamformer 612 is coupled to multiple RF parts 610(1), 610(2) . . . 610(N). Respective multiple RF parts 610(1), 610(2) . . . 610(N) are coupled to respective is multiple BB units 608(1), 608(2) . . . 608(N). On the other hand, Ethernet switch/router 602 is coupled to multiple MACs 604(1), 604(2) . . . 604(N). Both of the multiple BB units 608(1, 2 . . . N) and the multiple MACs 604(1, 2 . . . N) are coupled to MAC coordinator logic 606.

In operation generally, each respective MAC 604(1, 2 . . . N) is associated with a respective BB unit 608(1, 2 . . . N). Although not specifically shown in FIG. 6, each respective MAC 604 may also be in direct communication with each of the respective associated BB units 608. MAC coordinator logic 606 is configured to coordinate the activities of the multiple MACs 604 (e.g., as a multi-MAC controller (MMC)) with regard to at least one non-associated respective BB unit 608. For example, MAC coordinator logic 606 may forward an instruction to MAC 604(1) responsive, at least partly, to an indicator provided from BB unit 608(2). MAC coordinator logic 606 may be implemented as hardware, software, firmware, some combination thereof, and so forth.

...

As described above, each respective RF part 610(1, 2 . . . N) is coupled to a respective BB unit 608(1, 2 . . . N). Also, each respective MAC 604(1, 2 . . . N) is associated with a respective BB unit 608(1, 2 . . . N). Although not so illustrated in FIG. 6 or required, each respective MAC 604 and its associated respective BB unit 608 may be located on individual respective electronic cards. The respective RF part 610 to which each respective BB unit 608 is coupled may also be located on the individual respective electronic cards. In a described implementation, each respective MAC 604 and its associated respective BB unit 608 may be associated with a different respective access point, such as access points 402(1, 2 . . . N) (of FIG. 4). Each respective RF part 610, along with at least part of beamformer 612

and/or antenna array 208, and each respective communication beam 202 may also correspond to the different respective access points 402.

The linked structure and/or algorithm is further explained at 11:54-12:21:

As noted above, MAC coordinator logic 606 (and signal transmission/reception coordination logic 404 (of FIG. 4)) may be modified, tweaked, expanded, etc. based on any one or more of many factors. FIG. 8 illustrates some of these factors. For example, FIG. 8 includes channel assignment information 802, receive indicator enable information 804, timer logic 816, and scanning logic 812. Channel assignment information 802, receive indicator enable information 804, timer logic 816, and/or scanning logic 812 may be part of MAC coordinator logic 606 or another part of access station 102A.

Channel assignment information 802 enables receive indicators (1, 2 . . . 13) to be combined by receive indicators combiner 810 on a per-channel basis. As a result, constructive receive indicators (1, 2 . . . 13) restrain signal transmissions from MAC 604/BB unit 608 pairs when a signal reception is occurring on the same channel, even if by a different MAC 604/BB unit 608 pair. A downlinked packet that is transmitted on one channel while an uplinked packet is being received on another channel does not usually cause the uplinked packet to be thrashed (as long as the two channels are sufficiently well-defined or otherwise separated). On the other hand, a downlinked packet that is transmitted on a channel while an uplinked packet is being received on the same channel does usually cause the uplinked packet to be thrashed, even if the transmission and reception occur using different communication beams 202 (of FIGS. 2 and 3).

Channel assignment information 802 may be implemented as, for example, a vector that relates each MAC 604 and associated BB unit 608 to one of two or more channels. Hence, prior to combination using receive indicators combiner 810, each respective receive indicator of receive indicators (1, 2 . . . 13) can be mapped to a channel segmentation or grouping based on a wireless communication channel used by a corresponding MAC 604/BB unit 608 pair.

In other words, the MAC coordinator logic 606 affects the baseband unit and RF part via the MAC 604 associated with each RF part 610 and BB unit 608. A POSITA would readily understand the structure and process set forth in the specification and recognize that it is linked to the function of affecting a baseband unit and/or RF part as claimed.

5.5.5. Claim 15: “ascertaining, by monitoring the plurality of access points for received signals, that: a first access point of the plurality of access points is receiving a first signal on a first channel, a second access point of the plurality of access points is receiving a second signal that is ongoing on a second channel, restrain[ing] at least a third access point of the plurality of access points from transmitting a third signal on a third channel responsive to the ascertaining that the first access point is receiving the first signal and that the second access point is receiving the second signal that is ongoing-on the second channel, wherein the restraining at least the third access point prevents degradation to the first and second signals”

134. A POSITA would readily understand from the specification that the signal transmission/reception coordination logic 404 is capable of performing these functions and clearly linked to the claimed functions. In the alternative, the specification discloses an algorithm for performing this function. This is shown in figure 5 and described in the specification at 6:22-54:

At block 502, multiple access points are monitored. For example, access points 402(1 . . . N) may be monitored by signal transmission/reception coordination logic 404 (e.g., to detect signal reception). At block 504, it is ascertained that an access point of the multiple monitored access points is receiving a signal. For example, it may be ascertained by signal transmission/reception coordination logic 404 that an access point 402(1) of multiple access points 402(1 . . . N) is receiving a signal via a wireless I/O unit 206.

At block 506, the other access points of the multiple monitored access points are restrained from transmitting a signal. For example, signal transmission/reception coordination logic 404 may restrain access points 402(2 . . . N) from transmitting a signal. In a described implementation, signal transmission/reception coordination logic 404 may restrain access points 402(2 . . . N) from transmitting signals until access point 402(1) ceases receiving the signal.

With reference again to FIG. 4, one access point 402 (and/or communication beam 202) may operate on a different channel from that of another access point 402 (and/or communication beam 202). If the different channels are adjacent and/or not sufficiently-well defined, it may be beneficial to restrain transmission on a first channel with a first access point 402 even when receiving a wireless communication on a second different channel with a second access point 402. In another exemplary implementation for different channel situations, signal transmission/reception coordination logic 404 may restrain transmission on one channel on the basis of reception on another channel with an ongoing transmission

on a third channel to prevent (e.g., inter-modulation) distortion to the signals being communicated in the wireless system.

**5.5.6. Claim 23: restrain[ing] transmission from at least two access points
when another access point is expecting a short-term response to a frame
that was transmitted by said other access point**

135. A POSITA would readily understand from the specification that the signal transmission/reception coordination logic 404 is capable of performing these functions and clearly linked to the claimed functions. In the alternative, the specification discloses an algorithm for performing this function. This is shown in figures 5 and 11 and described in the specification at 17:1-32:

Signal transmission/reception coordination logic 404 as illustrated in FIG. 11 enables signal transmission/reception coordination across multiple access stations 102 to prevent or at least reduce interference. For example, there is potential interference if access station 102 a transmits wireless communication 106 a(N) to remote client 104 a(N) on a particular channel at the same time access station 102 b transmits wireless communication 106 b(1) to remote client 104 b(1) on the same particular channel, especially because of the proximity of remote client 104 a(N) to remote client 104 b(1). To eliminate this particular interference and ameliorate the overall network interference levels, signal transmission/reception coordination logic 404 restrains access station 102 b from transmitting communication signal 106 b(1) to remote client 104 b(1) when access station 102 a is transmitting communication signal 106 a(N) to remote client 104 a(N), and vice versa.

The above-described inter-access station 102 restraining may include, for example, situations in which coordination logic 404 restrains access station 102 b from transmitting to client 104 b(1) when client 104 a(N) is awaiting a short-term (e.g., an immediate) response to a frame that client 104 a(N) transmitted to access station 102 a in the recent past. More generally, an implementation may entail restraining transmission from an access point when another access point (e.g., that is part of the same or a different access station 102) that is operating on the same or a different channel (e.g., that is adjacent or otherwise) is expecting an immediate response to a frame that was transmitted by it. For example, this type of transmission restraint may be performed if the configuration of the wireless system is such that transmission by the access point interferes with the reception of the other access point.

- 5.6. “restrains at least one other access point of the plurality of access points from transmitting the other signal on a first channel responsive to the ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel” (’939 Patent cls. 1, 23)

<u>Plaintiff’s Construction</u>	<u>Defendants’ Construction</u>
No construction necessary.	“restrains at least one other access point of the plurality of access points, which is on a first channel, from transmitting the other signal on its channel while the access point of the plurality of access points is ascertained to be receiving the signal on a second different channel”

136. The next three terms are discussed together below in section 137.

- 5.7. “restrain at least a third access point of the plurality of access points from transmitting a third signal on a third channel responsive to the ascertaining that the first access point is receiving the first signal and that the second access point is receiving the second signal that is ongoing-on the second channel” (’939 Patent cl. 15)

<u>Plaintiff’s Construction</u>	<u>Defendants’ Construction</u>
No construction necessary.	“restrain at least a third access point of the plurality of access points, which is on a third channel, from transmitting a third signal on its channel while the first access point is ascertained to be receiving the first signal and the second access point is ascertained to be receiving the second signal that is ongoing-on the second channel”

137. This term is discussed below in section 137.

- 5.8. “restrain at least a second access point of the plurality of access points from transmitting a second signal on a second channel different from the first channel responsive to the ascertaining that the first access point is receiving the first signal” (’939 Patent cl. 30)

<u>Plaintiff’s Construction</u>	<u>Defendants’ Construction</u>
No construction necessary.	“restrain at least a second access point of the plurality of access points, which is on a second channel different from the first channel, from transmitting a second signal on its channel while the first access point is ascertained to be receiving the first signal”

138. A POSITA would readily understand, in light of the specification, what each of these three phrases means. The same issues apply to each term. I will discuss the first of the three terms here, but the discussion applies to all three terms. Each of the words and terms in the phrase has a plain and ordinary meaning and is used in that plain and ordinary sense—as confirmed by the fact that Defendants use every word in their own construction.

139. As a technological matter, I do not believe that Defendants’ construction meaningfully clarifies the scope of the claim. Basically, Defendants make two changes. First, the claim term as drafted says that the *transmitting* of the claimed “other signal” occurs “on a first channel.” Defendants change this to say that the *access point* is “on a first channel.” While the original language is technically precise, Defendants’ language is not; transmissions literally occur on a channel, but access points are not literally located on channels. Some technicians informally describe an access point as being “on a channel” when it is configured to transmit and/or receive on that channel. This sense is used a single time in the ’939 Patent specification, at 6:39-42, which says that “one access point 402 (and/or communication beam 202 may operate on a different channel from that of another access point 402 (and/or communication beam 202).” On the other hand, the specification more frequently refers to transmission or reception as occurring “on a channel.” *See, e.g.*, ’939 Patent at 6:43-45 (“[I]t may be beneficial to restrain transmission on a first channel with a first access point 402 even when receiving a wireless communication on a second different channel with a second access point 402.”), 6:48-51 (“coordination logic 404 may restrain transmission on one channel on the basis of reception on another channel with an ongoing

transmission on a third channel...”), 9:22-24 (“enable transmissions on a different channel or channels from that of BB unit 608(2)...”), 12:4-11 (“A downlinked packet that is transmitted on one channel while an uplinked packet is being received on another channel does not usually cause the uplinked packet to be thrashed.... On the other hand, a downlinked packet that is transmitted on a channel while an uplinked packet is being received on the same channel does usually cause the uplinked packet to be thrashed....”), 17:4-10 (“For example, there is potential interference if access station 102a transmits wireless communication 106a(N) to remote client 104a(N) on a particular channel at the same time access station 102b transmits wireless communication 106b(1) to remote client 104b(1) on the same particular channel, especially because of the proximity of remote client 104a(N) to remote client 104b(1).”).

140. The claim context confirms that, to the extent there is any difference between the term as written and Defendant’s rewriting, the limitation “on a first channel” goes with “transmission” not “access point.” As explained in the quotations above, it is the interference between *transmissions*, not between access points, that requires the step of restraining at least one other access point of the plurality of access points from transmitting. A POSITA would readily understand that the claim as drafted is consistent with the specification’s teaching to, for example, “restrain transmission *on a first channel* with a first access point.” ’939 Patent at 6:44-45 (emphasis added).

141. Second, Defendants change “responsive to the ascertaining that the access point of the plurality of access points” to “while the access point of the plurality of access points is ascertained to be receiving.” This is potentially confusing in that it breaks the antecedent connection between the step of “ascertaining... that a first access point is receiving a first signal” earlier in the claim. This might just be an oversight by Defendants, but if they believe that there should be *two* ascertainments in the claim, they are incorrectly changing the structure of the claimed invention. For example, Figure 5 of the patent clearly shows that there is a distinct step of ascertaining that an access point is receiving a signal (step 504) followed by restraining other access points from transmitting a signal (step 506). The word “ascertaining/ascertained” in this claim phrase should refer to the same step as “ascertaining... that a first access point is receiving a first signal.”

142. Also, Defendants insert the word “while.” To the extent Defendants intend to change the temporal ordering of the claim and require that the restraining occurs during the time when the “ascertain” step is being carried out, I disagree. Nothing in the specification or intrinsic record supports that change. To the contrary, the specification teaches that there are two distinct steps of ascertaining and restraining, which do not necessarily occur simultaneously. They of course *can* occur simultaneously, which is partially captured in claim 8, “wherein the signal transmission/reception coordination logic restrains at least one other access point of the plurality of access points ***while the first access point is receiving the first signal.***” A POSITA would readily understand that the restraining can occur either “while” the first access point is receiving the first signal (as in claim 8) or at some other time; otherwise claim 8 would be redundant. Logically, then, because the “ascertaining” occurs while the first access point is receiving the first signal, a POSITA would infer that the “restraining” step may occur either while the first access point is receiving the first signal (as in claim 8) or at some other time.

143. I have reviewed the '939 Patent, the prosecution file history for the '939 Patent, as well as its provisional applications 60/423,702 and 60/423,696, and I have not found anything within that would suggest to a POSITA that lexicography, express disclaimer, or prosecution history estoppel should apply to any of these terms and limit their scope.

5.9. “one other access point” ('939 Patent cls. 1, 7-8, 23)

<u>Plaintiff's Construction</u>	<u>Defendants' Construction</u>
No construction necessary.	Indefinite

144. In my opinion, a POSITA considering the claim language in context and in light of the specification would be certain of the scope of the claim term “one other access point.” The claim context in Claim 1 is as follows:

1. An apparatus comprising:

a wireless input/output (I/O) unit that is configured to establish a plurality of access points; and

signal transmission/reception coordination logic that is capable of ascertaining, by monitoring ***the plurality of access points*** for received signals, that ***a first access point of the plurality of access points*** is receiving a first signal and that is adapted to restrain ***at least two other access points of the plurality of access points*** from

transmitting signal responsive to the ascertaining that the first access point is receiving the first signal;

wherein the signal transmission/reception coordination logic restrains *at least one other access point of the plurality of access points* from transmitting the other signal on a first channel responsive to the ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel.

145. The context of claim 23 is analogous. In this context, the terms “the plurality of access points,” “a first access point of the plurality of access points, and “at least two other access points of the plurality of access points” have their plain and ordinary meanings. I note that Defendants do not propose any construction of those terms, nor do they argue that those terms are indefinite.

146. A POSITA would readily understand from the claim context and specification that “at least one other access point of the plurality of access points” refers to an access point of the plurality of access points that is not the claimed first access point. This is the plain and ordinary meaning of “other” in this context. Although I do not believe there is any ambiguity, a POSITA would be able to readily confirm this interpretation by consulting the specification. This concept is expressly spelled out, in mathematical terminology, at 6:1-7:

When an access point 402(*w*) is ascertained to be receiving a signal, signal transmission/reception coordination logic 404 is capable of restraining (e.g., limiting, preventing, delaying, etc.) the transmission of signals on *the other access points* 402(1 . . . *w*-1, *w*+1 . . . *N*). It should be noted that “*w*” can be equal to 1 or *N* and that the other access points 402 reduce to access points 402(2 . . . *N*) and 402(1 . . . *N*-1), respectively.

Here, access point 402(*w*) refers to the *w*-th of the plurality of access points, and corresponds to the claimed “first access point of the plurality of access points,” i.e. the access point that is ascertained to be receiving a signal. The specification explains that “the other access points” are access points 402(1 . . . *w*-1, *w*+1 . . . *N*). In other words, if access point #2 is the access point ascertained to be receiving a signal, then “the other access points” include access points #1, #3, #4, and so forth. A POSITA would recognize that the access point numbering is for explanatory purposes and does not necessarily have technological significance.

147. In this context, it is clear that “at least one other access point of the plurality of access points” refers to exactly what it says: at least one access point that is not the claimed first access point.

148. A POSITA would also consider the specification's disclosure of restraining transmissions on other channels, at 6:39-53:

With reference again to FIG. 4, *one access point 402* (and/or communication beam 202) may operate on a different channel from that of *another access point 402* (and/or communication beam 202). If the different channels are adjacent and/or not sufficiently-well defined, it may be beneficial to *restrain transmission on a first channel with a first access point 402* even when receiving a wireless communication on a *second different channel with a second access point 402*. In another exemplary implementation for different channel situations, signal transmission/reception coordination logic 404 may *restrain transmission on one channel* on the basis of reception *on another channel* with an ongoing transmission on a third channel to prevent (e.g., inter-modulation) distortion to the signals being communicated in the wireless system.

A POSITA would recognize that the numbering in the specification is the opposite of the numbering in the claim, e.g. that in the specification the “first” or “one access point” is the one whose transmission is restrained, whereas in the claim it is the “other access point” that is restrained, and the claimed “first access point” is not restrained. This difference is of no significance.

149. As to indefiniteness, I understand that Defendants assert that this claim limitation is indefinite and that the patent claims are as a result invalid. As I understand it, Defendants have not yet been required to provide a written explanation why they believe the claim indefinite, so I cannot yet respond to Defendants' theories. But it is clear to me that by reading the claims in light of the specification and the prosecution history, a POSITA would readily understand, with reasonable certainty, the scope of the invention.

150. Although Defendants concede that the claim term “at least *two* other access points of the plurality of access points” is not indefinite, they may be suggesting that it is unclear whether the claimed “at least *one* other access point” can be one of the “at least *two* other access points.” In my opinion a POSITA would have no difficulty resolving this hypothetical question. The plain and ordinary meaning of both phrases, read in light of the specification and bearing in mind the purpose and function of the disclosed invention, confirms that the important distinction is between the “first access point” that is ascertained to be receiving a signal, on the one hand, and the “other access points” that comprise the rest of the plurality of access points. The two “other access points” limitations, in context, capture different aspects of the claimed invention, for example that (1) there

are at least two access points that are restrained, and (2) that in the case of at least one access point, the access point is restrained from transmitting on a channel that is different from the channel the first access point is ascertained to be receiving a signal on. A POSITA would recognize that in some circumstances a single “other access point” could satisfy both limitations. Logically, any access point that satisfies the “one other access point” limitation would also be able to stand as one of the “at least two other access points,” so long as there exists at least a second “other access point.” But the converse is not true; it is logically possible to have “at least two other access points” neither of which satisfies the additional “different channel” limitation of the “one other access point” limitation. Therefore it is clear from a technological and logical perspective that the claimed “one other access point” may be, but need not be, one of the claimed “at least two other access points.”

151. Likewise, Defendants may argue that it is not clear whether the claimed “at least one other access point” of claims 7 and 8 must be the same or different from the claimed “at least one other access point” of claim 1. Again, in my opinion a POSITA would have no difficulty resolving these hypothetical questions. Logically, the requirements of claim 7 and 8 can be satisfied either by the same “one other access point” as in claim 1 or by different access points of the plurality of access points (other than, of course, the claimed first access point).

152. I have reviewed the ’939 Patent, the prosecution file history for the ’939 Patent, as well as its provisional applications 60/423,702 and 60/423,696, and I have not found anything within that would suggest to a POSITA that lexicography, express disclaimer, or prosecution history estoppel should apply to the term “one other access point” and limit its scope.

5.10. “the other signal” (’939 Patent cls. 1, 23)

<u>Plaintiff’s Construction</u>	<u>Defendants’ Construction</u>
No construction necessary.	Indefinite

153. A POSITA would readily understand, in light of the specification, the scope of claim 1 with respect to the claim phrase “the other signal.” In particular, “the other signal” refers to the signal that is transmitted on a first channel by the claimed “at least one other access point of the plurality of access points.”

154. The claim context confirms this understanding. The claim context in Claim 1 is as follows:

1. An apparatus comprising:

a wireless input/output (I/O) unit that is configured to establish a plurality of access points; and

signal transmission/reception coordination logic that is capable of ascertaining, by monitoring the plurality of access points for received signals, that a *first access point* of the plurality of access points is receiving a *first signal* and that is adapted to restrain *at least two other access points of the plurality of access points* from transmitting *signal* responsive to the ascertaining that the first access point is receiving the first signal;

wherein the signal transmission/reception coordination logic restrains *at least one other access point of the plurality of access points* from transmitting *the other signal* on a first channel responsive to the ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel.

The context of claim 23 is analogous.

155. A POSITA would compare this claim context to the specification's disclosure of restraining transmissions on other channels, at 6:39-53:

With reference again to FIG. 4, *one access point 402* (and/or communication beam 202) may operate on a different channel from that of *another access point 402* (and/or communication beam 202). If the different channels are adjacent and/or not sufficiently-well defined, it may be beneficial to *restrain transmission on a first channel with a first access point 402* even when receiving a wireless communication on a *second different channel with a second access point 402*. In another exemplary implementation for different channel situations, signal transmission/reception coordination logic 404 may *restrain transmission on one channel* on the basis of reception *on another channel* with an ongoing transmission on a third channel to prevent (e.g., inter-modulation) distortion to the signals being communicated in the wireless system.

A POSITA would recognize that the numbering in the specification is the opposite of the numbering in the claim, e.g. that in the specification the “first” or “one access point” is the one whose transmission is restrained, whereas in the claim it is the “other access point” that is restrained, and the claimed “first access point” is not restrained. This difference is of no significance.

156. In light of the specification, a POSITA would understand that the claimed “other signal” refers to a signal transmitted by the claimed “other access point.” This is reinforced by the

parallelism of the claims themselves: the first access point transmits the first signal and the at least one other access point transmits the other signal. The claimed at least two other access points transmit “signal,” which Defendants do not assert requires construction and do not argue is indefinite. It is clear that the “signal” transmitted by the at least two other access points is not claimed as the “other signal,” confirming that the claimed “other signal” transmitted by the at least one other access point need not be the same as the claimed “signal” transmitted by the at least two other access points. As I explained in the previous section, it is possible that the claimed “at least one access point” could be, but need not be, one of the claimed “at least two other access points,” and the same relationship holds between the claimed “signal” and “other signal.” A POSITA would not have any difficulty determining the scope of these claim terms.

157. Furthermore, I note that “the other signal” was added to the claims by the patent examiner—not the applicant—on July 16, 2012:

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Carl A. Kukkonen, III on July 10, 2012.

3. The application has been amended as follows:

IN THE CLAIMS

Claim 9 has been rewritten as bellows:

An apparatus comprising:

a wireless input/output (I/O) unit that is configured to establish a plurality of access points; and

signal transmission/reception coordination logic that is capable of ascertaining, by monitoring the plurality of access points for received signals, that a first access point of the plurality of access points is receiving a first signal and that is adapted to restrain at

least two other access points of the plurality of access points from transmitting signal responsive to the ascertaining that the first access point is receiving the first signal; wherein the signal transmission/reception coordination logic restrains at least one other access point of the plurality of access points from transmitting the other signal on a first channel responsive to the ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel.

Canceled claim 17;

Claim 109 has been rewritten as bellows:

An apparatus comprising:

a wireless input/output (I/O) unit that is configured to establish a plurality of access points; and

signal transmission/reception coordination logic that restrains transmission from at least two access points when another access point is expecting a short-term response to a frame that was transmitted by said other access point;

wherein the signal transmission/reception coordination logic restrains at least one other access point of the plurality of access points from transmitting the other signal on a first channel responsive to the ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel.

I note that claim 19 corresponds to issued claim 1 and claim 109 corresponds to issued claim 23. A POSITA reviewing this amendment would recognize that the examiner likely overlooked that the claims already included two “signals” and that it would be helpful to clarify the relationship among the three. In my opinion, even if this was an error by the examiner, it was a minor error that would not confuse any POSITA regarding the scope of the claim.

158. I have reviewed the '939 Patent, the prosecution file history for the '939 Patent, as well as its provisional applications 60/423,702 and 60/423,696, and I have not found anything within that would suggest to a POSITA that lexicography, express disclaimer, or prosecution history estoppel should apply to the term “the other signal” and limit its scope.

5.11. “the access point” (’939 Patent cls. 1, 4-5, 20-21, 23, 33-34)

<u>Plaintiff’s Construction</u>	<u>Defendants’ Construction</u>
“the first access point”	Indefinite

5.12. “the signal” (’939 Patent cls. 1, 23)

<u>Plaintiff’s Construction</u>	<u>Defendants’ Construction</u>
“the first signal”	Indefinite

159. A POSITA would readily recognize that “the access point” and “the signal” in each of the claims are typographical errors and that the terms refer to the “first access point” and “first signal” respectively. Furthermore, a POSITA would readily understand, in light of the specification, the scope of claim 1 with respect to this claim term.

160. The claim context confirms this understanding to a POSITA. The claim context in Claim 1 is as follows:

1. An apparatus comprising:

a wireless input/output (I/O) unit that is configured to establish a plurality of access points; and

signal transmission/reception coordination logic that is capable of *ascertaining*, by monitoring the plurality of access points for received signals, *that a first access point of the plurality of access points is receiving a first signal* and that is adapted to restrain at least two other access points of the plurality of access points from transmitting signal responsive to the ascertaining that the first access point is receiving the first signal;

wherein the signal transmission/reception coordination logic *restrains at least one other access point of the plurality of access points from transmitting* the other signal on a first channel responsive to *the ascertaining that the access point of the plurality of access points is receiving the signal* on a second different channel.

The context of claim 23 is analogous.

161. It is obvious both on a textual and technological level that “the ascertaining that *the access point* of the plurality of access points is receiving *the signal*” near the end of the claim refers back to the capability of “ascertaining... that *a first access point* of the plurality of access

points is receiving *a first signal*.” There is no other “ascertaining” in the claim, and no other “signal” that is ascertained to be received.

162. Reading the claim in light of the specification also confirms this interpretation. For example, the '939 Patent explains at 6:22-53:

At block 502, multiple access points are monitored. For example, access points 402(1 . . . N) may be monitored by signal transmission/reception coordination logic 404 (e.g., to detect signal reception). *At block 504, it is ascertained that an access point of the multiple monitored access points is receiving a signal*. For example, it may be ascertained by signal transmission/reception coordination logic 404 that an access point 402(1) of multiple access points 402(1 . . . N) is receiving a signal via a wireless I/O unit 206.

At block 506, the other access points of the multiple monitored access points *are restrained from transmitting* a signal. For example, signal transmission/reception coordination logic 404 may restrain access points 402(2 . . . N) from transmitting a signal. In a described implementation, signal transmission/reception coordination logic 404 may restrain access points 402(2 . . . N) from transmitting signals until access point 402(1) ceases receiving the signal.

With reference again to FIG. 4, one access point 402 (and/or communication beam 202) may operate on a different channel from that of another access point 402 (and/or communication beam 202). If the different channels are adjacent and/or not sufficiently-well defined, it may be beneficial to *restrain transmission on a first channel* with a first access point 402 even when *receiving a wireless communication on a second different channel with a second access point 402*. In another exemplary implementation for different channel situations, signal transmission/reception coordination logic 404 may restrain transmission on one channel on the basis of reception on another channel with an ongoing transmission on a third channel to prevent (e.g., inter-modulation) distortion to the signals being communicated in the wireless system

163. Again, the description of figure 4 uses a different ordering than figure 5; the “second access point 402” corresponds to the “access point” or “account point 402(1)” in the previous paragraphs. A POSITA would readily understand which access point is ascertained to be receiving a signal (the “access point” of block 502 and the “second access point 402” of figure 4) and would not be confused. The excerpt above is color-coded to indicate the parallelism between these three paragraphs and the specification. From this a POSITA would readily recognize that there is just one “ascertaining” claimed, which is referenced towards the end of the claim in the context of the disputed term. There is no other way to correct the typographical errors than by linking the claimed “access point” and “signal” to the “first access point” and “first signal”

respectively; any other change would be inconsistent with the specification. A POSITA therefore would have no difficulty understanding the scope of the claim.

164. Furthermore, I note that “the access point” and “the signal” were both added to this claim by the patent examiner—not the applicant—on July 16, 2012:

EXAMINER’S AMENDMENT

2. An examiner’s amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner’s amendment was given in a telephone interview with Mr. Carl A. Kukkonen, III on July 10, 2012.

3. The application has been amended as follows:

IN THE CLAIMS

Claim 9 has been rewritten as bellows:

An apparatus comprising:

a wireless input/output (I/O) unit that is configured to establish a plurality of access points; and

signal transmission/reception coordination logic that is capable of ascertaining, by monitoring the plurality of access points for received signals, that a first access point of the plurality of access points is receiving a first signal and that is adapted to restrain at

165. I have reviewed the '939 Patent, the prosecution file history for the '939 Patent, as well as its provisional applications 60/423,702 and 60/423,696, and I have not found anything within that would suggest to a POSITA that lexicography, express disclaimer, or prosecution history estoppel should apply to the terms “the access point” or “the signal” and limit their scope.

166. The same reasoning applies to “the first access point” in claims 4, 5, 20, 21, 23, 33, and 34.

5.13. “the ascertaining” ('939 Patent cl. 23)

<u>Plaintiff's Construction</u>	<u>Defendants' Construction</u>
No construction necessary.	Indefinite

167. A POSITA would readily understand, in light of the specification, the scope of claim 1 with respect to the claim phrase “the ascertaining.” In particular, “the ascertaining” refers to the element of ascertaining that the first access point of the plurality of access points is receiving the signal on a second different channel.

168. The claim context confirms this understanding to a POSITA. The context in claim 23 is as follows:

23. An apparatus comprising:

a wireless input/output (I/O) unit that is configured to establish a plurality of access points; and

signal transmission/reception coordination logic that restrains transmission from at least two access points when another access point is expecting a short-term response to a frame that was transmitted by said other access point;

wherein the signal transmission/reception coordination logic *restrains at least one other access point of the plurality of access points from transmitting* the other signal on a first channel responsive to *the ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel.*

A POSITA reviewing this claim would understand that the signal transmission/reception coordination logic ascertains that the first access point of the plurality of access points is receiving a signal; and in response to that ascertaining, restrains at least one other access point from transmitting. Reading the claim in light of the specification would confirm the POSITA's interpretation. For example, the '939 Patent explains at 6:22-38:

At block 502, multiple access points are monitored. For example, access points 402(1 . . . N) may be monitored by signal transmission/reception coordination logic 404 (e.g., to detect signal reception). *At block 504, it is ascertained that an access point of the multiple monitored access points is receiving a signal.* For example, it may be ascertained by signal transmission/reception coordination logic 404 that an access point 402(1) of multiple access points 402(1 . . . N) is receiving a signal via a wireless I/O unit 206.

At block 506, the other access points of the multiple monitored access points *are restrained from transmitting* a signal. For example, signal transmission/reception coordination logic 404 may restrain access points 402(2 . . . N) from transmitting a signal. In a described implementation, signal transmission/reception coordination logic 404 may restrain access points 402(2 . . . N) from transmitting signals until access point 402(1) ceases receiving the signal.

As I have illustrated with color-coding above, a POSITA would readily recognize the parallelism between the claimed “ascertaining” and the apparatus of block 504; between the claimed access point (first access point) and the access point in the specification; and the claimed “restrains at least one other access point” with the specification description of other access points “are restrained from transmitting.”

169. A POSITA would also understand that “the ascertaining” is part of the signal transmission/reception coordination logic. I note that Defendants have contended, in the context of their section 112(6) argument, that “ascertaining, by monitoring the plurality of access points for received signals, that a first access point of the plurality of access points is receiving a first signal” is a function of the “signal transmission/reception coordination logic” in the context of claim 1. There is no reason why the signal transmission/reception coordination logic of claim 1 would be linked to that function but the signal transmission/reception coordination logic of claim 23 would not. In any event, a POSITA considering claim 23 would look to the parallel claim 1, as well as to the context of claim 23 itself, to determine that the ascertaining is not part of the wireless input/output unit but rather part of the signal transmission/reception coordination logic.

170. As to indefiniteness, I understand that Defendants assert that this claim limitation is indefinite and that the patent claims are as a result invalid. As I understand it, Defendants have not yet been required to provide a written explanation why they believe the claim indefinite, so I cannot yet respond to Defendants’ theories. But it is clear to me that by reading the claims in light of the specification and the prosecution history, a POSITA would readily understand, with reasonable certainty, the scope of the invention. For example, Defendants may argue that the claim

is indefinite because it uses the article “the” instead of “a.” A POSITA would not find that the least confusing. It is clear that “the ascertaining” refers to “ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel” and not to some other unclaimed “ascertaining.” It is also clear that “the ascertaining” is part of the signal transmission/reception coordination logic.

171. Furthermore, I note that “the ascertaining” was added to this claim by the patent examiner—not the applicant—on July 16, 2012:

EXAMINER’S AMENDMENT

2. An examiner’s amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner’s amendment was given in a telephone interview with Mr. Carl A. Kukkonen, III on July 10, 2012.

3. The application has been amended as follows:

IN THE CLAIMS

Claim 9 has been rewritten as bellows:

An apparatus comprising:

a wireless input/output (I/O) unit that is configured to establish a plurality of access points; and

signal transmission/reception coordination logic that is capable of ascertaining, by monitoring the plurality of access points for received signals, that a first access point of the plurality of access points is receiving a first signal and that is adapted to restrain at

least two other access points of the plurality of access points from transmitting signal responsive to the ascertaining that the first access point is receiving the first signal; wherein the signal transmission/reception coordination logic restrains at least one other access point of the plurality of access points from transmitting the other signal on a first channel responsive to the ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel.

Canceled claim 17;

Claim 109 has been rewritten as bellows:

An apparatus comprising:

a wireless input/output (I/O) unit that is configured to establish a plurality of access points; and

signal transmission/reception coordination logic that restrains transmission from at least two access points when another access point is expecting a short-term response to a frame that was transmitted by said other access point;

wherein the signal transmission/reception coordination logic restrains at least one other access point of the plurality of access points from transmitting the other signal on a first channel responsive to the ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel.

I note that claim 19 corresponds to issued claim 1 and claim 109 corresponds to issued claim 23. A POSITA reviewing this amendment would recognize that the examiner intended to limit both claims in that the restraining is responsive to an ascertaining, but likely overlooked that although “ascertaining” was already present in what became claim 1, it was a new element in what became claim 23, and therefore did not get the wording quite as correct as would be expected. In my

opinion, even if this was an error by the examiner, it was a minor error that would not confuse any POSITA regarding the scope of the claim.

172. I have reviewed the '939 Patent, the prosecution file history for the '939 Patent, as well as its provisional applications 60/423,702 and 60/423,696, and I have not found anything within that would suggest to a POSITA that lexicography, express disclaimer, or prosecution history estoppel should apply to the term “the ascertaining” and limit its scope.

5.14. “the other access point” ('939 Patent cls. 25-28)

<u>Plaintiff's Construction</u>	<u>Defendants' Construction</u>
No construction necessary.	Indefinite

173. A POSITA would readily understand, in light of the specification, the scope of claim 1 with respect to the claim phrase “the other access point” in the context of claims 25-28. In particular, “the other access point” refers to the “another access point... expecting a short-term response to a frame that was transmitted by said *other access point*” in claim 23, the independent claim from which these claims depend.

174. Reading the claim in light of the specification would confirm the POSITA's interpretation. The claim context is:

23. An apparatus comprising:

[23a] a wireless input/output (I/O) unit that is configured to establish a plurality of access points; and

[23b] signal transmission/reception coordination logic that restrains transmission from *at least two access points* when *another access point is expecting a short-term response to a frame that was transmitted by said other access point*;

[23c] wherein the signal transmission/reception coordination logic restrains at least one other access point of the plurality of access points from transmitting the other signal on a first channel responsive to the ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel.

25. The apparatus of claim 23, wherein *the other access point* is also established by the wireless I/O unit of the access station.

26. The apparatus of claim 23, wherein *the other access point* is established by a different access station.

27. The apparatus of claim 23, wherein *one or more of the at least two access points* and *the other access point* are operating on a same channel.

28. The apparatus of claim 23, wherein *one or more of the at least two access points* and *the other access point* are operating on different channels.

A POSITA would understand the parallelism, shown in red above, between the limitations of claims 25-28 and element [23c], which has “another access point” (that is, “an other access point,” which is incorrect English) that is later referred to as “said other access point,” in combination with “at least two access points.”

175. A POSITA would confirm this understanding by considering the patent specification. For example, the '939 Patent explains at 17:23-31:

More generally, an implementation may entail restraining transmission from *an access point* when *another access point* (e.g., that is part of the same or a different access station 102) that is operating on the same or a different channel (e.g., that is adjacent or otherwise) is *expecting an immediate response to a frame that was transmitted by it*. For example, this type of transmission restraint may be performed if the configuration of the wireless system is such that transmission by the access point interferes with the reception of the other access point.

As I have illustrated with color-coding above, a POSITA would readily recognize the parallelism between the claimed “at least two access points” and the “access point” in the specification; between the claimed “another/the other access point” with the “another access point” in the specification, between the claimed “expecting a short-term response to a frame that was transmitted by the said other access point” and the specification’s teaching of “expecting an immediate response to a frame that was transmitted by it,” between claim 27’s “operating on a same channel” and the specification’s “operating on the same channel,” and between claim 28’s “operating on different channels” and the specification’s “operating on... a different channel.” These parallels would further confirm to a POSITA that the “other access point” in element 23b is the same as the “other access point” in claims 25-27.

176. As to indefiniteness, I understand that Defendants assert that this claim limitation is indefinite and that the patent claims are as a result invalid. As I understand it, Defendants have not yet been required to provide a written explanation why they believe the claim indefinite, so I cannot yet respond to Defendants’ theories. But it is clear to me that by reading the claims in light of the specification and the prosecution history, a POSITA would readily understand, with

reasonable certainty, the scope of the invention. For example, Defendants may argue that the claim is indefinite because “the other access point” could refer, not to the other access point of element 23b, but to the “at least one other access point” of element 23c. A POSITA would not find that confusing. As I explain above, there is contextual and specification support linking “the other access point” to element 23b, not 23c. Furthermore claims 27 and 28 are less consistent with element 23c than 23b.

177. Furthermore, I note that that if Defendants argue there is an ambiguity between elements 23b and 23c, that potential ambiguity was added to the claim by the patent examiner—not the applicant—on July 16, 2012:

EXAMINER’S AMENDMENT

2. An examiner’s amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner’s amendment was given in a telephone interview with Mr. Carl A. Kukkonen, III on July 10, 2012.

3. The application has been amended as follows:

IN THE CLAIMS

Claim 9 has been rewritten as bellows:

An apparatus comprising:

a wireless input/output (I/O) unit that is configured to establish a plurality of access points; and

signal transmission/reception coordination logic that is capable of ascertaining, by monitoring the plurality of access points for received signals, that a first access point of the plurality of access points is receiving a first signal and that is adapted to restrain at

least two other access points of the plurality of access points from transmitting signal responsive to the ascertaining that the first access point is receiving the first signal;
wherein the signal transmission/reception coordination logic restrains at least one other access point of the plurality of access points from transmitting the other signal on a first channel responsive to the ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel.

Canceled claim 17;

Claim 109 has been rewritten as bellows:

An apparatus comprising:

a wireless input/output (I/O) unit that is configured to establish a plurality of access points; and

signal transmission/reception coordination logic that restrains transmission from at least two access points when another access point is expecting a short-term response to a frame that was transmitted by said other access point;

wherein the signal transmission/reception coordination logic restrains at least one other access point of the plurality of access points from transmitting the other signal on a first channel responsive to the ascertaining that the access point of the plurality of access points is receiving the signal on a second different channel.

I note that claim 109 corresponds to issued claim 23. A POSITA reviewing this amendment would recognize that the examiner intended to add substantially the same limitation to what would become both claims 1 and 23, but overlooked that several claims depending from claim 23 referred to “the other access point.” Prior to the examiner’s amendment, there was only one “other access point” that these dependent claims could have possibly referred to, i.e. in what is now element 23b. The examiner arguably could have made more extensive amendments to the claims to avoid

changing the existing meaning of what became claims 25-28. In my opinion, even if this was an error by the examiner, it was a minor error that would not confuse any POSITA regarding the scope of the claim.

178. I have reviewed the '939 Patent, the prosecution file history for the '939 Patent, as well as its provisional applications 60/423,702 and 60/423,696, and I have not found anything within that would suggest to a POSITA that lexicography, express disclaimer, or prosecution history estoppel should apply to the term “the other access point” and limit its scope.

5.15. “IEEE 802.11 standard” ('939 Patent cls. 3, 19, 32)

<u>Plaintiff's Construction</u>	<u>Defendants' Construction</u>
No construction necessary.	Indefinite

179. A POSITA would readily understand, in light of the specification, that the term “802.11 standard” has a plain and ordinary meaning. The '376 Patent uses that term in its plain and ordinary meaning. The term refers to a family of wireless networking standards set by the Institute of Electrical and Electronics Engineers (IEEE, pronounced “eye-triple-eee”). This term is recognized and used by all engineers in the wireless networking space. The specification and the list of references also mention 802.11a, 802.11b and 802.11f as examples of the 802.11 family of standards. In my opinion, a POSITA considering the claim language in context and in light of the specification would be certain of the scope of the claim term, which extends to any of the 802.11 standards.

180. The claim context confirms that the term is not indefinite. For example, the context in Claim 3 is:

The apparatus of claim 1, wherein the wireless I/O unit operates in accordance with
at least one IEEE 802.11 standard.

Claims 19 and 32 are analogous. A POSITA would readily understand that “at least one IEEE 802.11 standard” acknowledges that there may be several different 802.11 standards, that the claim term refers to any one or more of them, and is not intended to refer to a particular 802.11 standard.

I declare under penalty of perjury pursuant to the laws of the State of California that the foregoing is true and correct.

Executed this 2nd day of November, 2021.


Branimir Vojcic, PhD